426/577

_____ Pectin Becoming a More Standardized Article.
Fruit Products J. Am. Vin. Ind. 5, No. 10, p. 20 (June 1926)

Ball, N. G.
On the Action of Pectase.
Sci. Proc. Roy, Dublin Soc., 14, 349-57, (1915)
C. A. 10, 205 ; Expt. Sta. Record 35, 25 X.)

Baker, G. L.
Jelly Strength of Pectin Jells.
Ind. Eng. Chem. 18, 89, (1926).
see also Tarr, L. W.

Bell, J. C.
Clarification of Pectinous Fruit Juices.
Fruit Products J. Am. Vinegar Ind. 5, No. 9, p. 15, May 1926.

_____ Extraction of Pectinous Fruit Juices.
Fruit Products J. Am. Vinegar Ind. 5, No. 11, p. 15,(July, 1926.

_____ Making Jelly from Pectinous Fruit Juices.
Fruit Products J. Am. Vinegar Ind. 5, No. 12, p. 10, Aug. 1926.

Belling, J.
Guava.
Fla. Agr. Expt. Sta. Report 1908, p. CV-CIX.
(Expt. Sta. Record, 21, 380)

Bigelow, W. D. and Gore, H. C.
Studies on Apple Marc.
J. Am. Chem. Soc. 28, 200 (1906)
Studies on aqueous solution. Pectin not precipitated.

_____ and Howard, B. J.
Studies on Apple II Insoluble Carbohydrates or Marc.
U. S. Dept. Agr. Bu. Chem. Bul. 94, 67-87 (1904)
A review of early work.

Brooks, R. O.
Pectin Fruit Jellies.
Fruit Products J. Am. Vinegar Ind., 3, No. 9, p. 5 (May 1924.)

Brown, J. C.
Some Observations on Pectin.
Fruit Products J. Am. Vinegar Ind., 2, No. 10, p. 14,(June 1923)

ON EXTRACTION, DETERMINATION AND RELATION OF PECTIN TO JELLY MAKING.

_____ Some Facts About Pectin.
Am. Food. J. 18, 348, (1923.)

Caldwell, J. S.
A New Method for the Preparation of Pectin.
Wash. Agr. Expt. Sta. Bul. 147, 1-14 (1917)
C. A. 11, 3062; Exp. Sta. Record, 37, 715)
See also Magoon and Caldwell.

Campbell, C. H.
Jelly.
J. Ind. Eng. Chem. 12, 558-9 (1920)
C. A. 14, 2225 : Exp. Sta. Record, 43, 616)

Scientific and Practical Manufacture of Apple Pomace Jelly.
The Canner, 57,No. 30, p. 23-5 (1923).

Some Phases of Commercial Jelly Making.
Canning Age 6. 347, (1925)

Chernoff, L. H.
Pectin, Jelly Making, Sugar.
Am. Food J. 8, No. 4, p. 200-1 (1923)

Cohen, J. S.
The Origin of Pectin and Its Manufacture.
Fruit Products J. Am. Vin. Ind. No. 5, p. 13, (Jan. 1922).

The Keeping Quality of Pomace, Its Sale Based on Pectin Present.
Fruit Products J. Am. Vin. Ind. 2, No. 5, p. 11, (Jan. 1923).

More Observations on Pectin.
Fruit Products J. Am. Vin. Ind. 2, No. 12, p. 11, (Aug. 1923)

Pectin, Jams, and Jellies.
Fruit Products J. Am. Vin. Ind. 3, No. 4, p. 13, (Dec. 1923).

What Should Jelly Standards Be?
Fruit Products J. Am. Vin. Ind. 8, No. 4, p. 15 (Dec. 1928)
C. A. 23, 650).

Cole, G. M., Cox, R. E. and Joseph, G. H.
Does Sugar Inversion Affect Pectin Jelly Formation ?
Food Industries 2, 219 (1930) May.

Congdon, L. A.
Investigation of Commercial Fruit Jellies.
N. Dakota Agr.Expt. Sta. Food Dept. Bul. 3, No. 8, p. 112-24,1914.
(C. A. 9, 1949)

_____ A Study of the Gelatinizing Agents, Pasty Materials and Thickeners used in Food Products.
Trans. Kans. Acad. Sci., 27, 81-6 (1914).
(Expt. Sta. Record, 34, 167).

Cruess, W. V.
Jellies and Marmalades from Citrus Fruits.
Calif. Exp. Sta. Cir. 146 (1916).
(C. A. 11, 1497)

_____ Fruit By-products.
Calif. Sta. Report, p. 31, (1915).

_____ Relation of Jelly Manufacture to Canning.
The Canner, 57, No. 3, p. 27-30 (1923)

_____ and McNeir, J. B.
Jelly Investigations.
J. Ind. Eng. Chem., 8, 417-21 (1916)
Exp. Sta. Record, 35, 418).

_____ and Singh, L.
Marmalade Juice and Jelly Juice from Citrus Fruits.
Calif. Expt. Sta. Cir. 243 , (1922).

Dearing, C.
Home Uses for Muscadine Grapes.
U. S. Dept. Agr. Farmer's Bul. 859 , 9-16 (1917).

Denton, M. C.
Kitchen Tests for Pectin in Jelly Making.
J. Home Econ., 10, 520 (1918)
Expt. Sta. Record, 40, 558).

_____ , Johnstin, R. Yeatman, F. W.
Homemade Apple and Citrus Pectin Extracts and Their Use in Jelly Making.
U. S. Dept. Agr. 354, revised 1923.

Dilwarth, W. S.
Real, Preserves, Jams Jellies. Imitation Preserves, Jams Marmalades, Jellies.
The Canner, 50, No. 2, p. 50 (1920).

Dore, W. H.
Recent Progress in the Chemistry of Pectin and Its Industrial Applications.
Ind. Eng. Chem. 16, 1042 (1924)
(C. A. 18, 3438)
A Review.

———
The Composition of Pectin.
J. Am. Chem. Soc. 48, 832 (1926)

Dore, W. H.
The Pectic Substances.
J. Chem. Education, 3, 505-15 (1926)
(C. A. 20, 2375)
Review of investigations since 1825.

Falk, G. K. and McGuire, C.
Studies of Enzyme Action XXI. Banana Gel. and Banana Sucrose.
J. Biol. Chem. 54, 655, (1922)

Goldthwaite, Nellie E.
Contribution on the Chemistry and Physics of Jelly Making.
J. Ind. Eng. Chem. 1, 333-40 (1909)
(C. A. 3, 1892)

———
Contribution on Jelly-Making.
J. Ind. Eng. Chem. 2, 457-62 (1910)
(C. A. 5, 325.)

———
The Principles of Jelly Making.
Univ. of Ill. Bul. XI, 4th Ed. No. 31 (1915). Reprint N.Y. (Cornell) Agr. Expt. Sta. Food Ser., Lesson 114, (1917).

Hafley, A. H.
Pectin Extracting and Cider Pressing by New Machine.
The Canner 53, No. 1, p. 39, (1921) See also Fruit Products J. Amer. Vinegar Ind., 1, No. 2, p. 17, (Oct. 1921) 1, No. 5, p. 16, (Jan. 1922).

Hunt, C. H.
A Method for Preparing Pectin.
Science, N. S. 48, 201-2 (1918).
(C. A. 12, 2099.)

Jameson.
Chemistry of the Citrus Industry in California.
J. Chem. Education 3, 1122 (1926.

Johnson, R. and Denton, M. C.
The Relation of Alcohol Precipitate to Jellying Power of Citrus Pectin Extracts.
J. Ind. Eng. Chem. 15, 778-80 (1923).

Lathrop, C. P.
Chemistry of the Preserve or Jam and Jelly Industry.
Ind. Eng. Chem. 20, 1298 (1928)

Loesecke, H. von
Banana Pectin. A Preliminary Report.
Fruit Products J. Am. Vin. Ind. 8, No. 6, p. 14-6 Feb. 1929.
(C. A. 23, 1965).

McNair, J. B.
The Consistency of Pectin Gels.
J. Phys. Chem. 20, 633-9 (1916)
(C. A. 11, 6).

McNair, J. B.
Citrus Products.
Field Museum of Natural History.
Botanical Series 6, 73-109 (1926)

Magoon, C. A. and Caldwell, J. S.
A New and Improved Method for Obtaining Pectin from Fruits and Vegetables.
Science, N. S., 47, 592-4 (1918)
(C. A. 12, 1804).

Marsh, G. and Pitman, G. A.
Pectin in Grapes.
Fruit Products J. Am. Vin. Ind. 9, 187-8 (1930).

Myers, P. B. and Baker, G. L.
Fruit Jellies IV, The Role of Salts.
Univ. Del. Agr. Expt. Sta. Bul. 144 (1926)
See also Tarr, L. W.

Fruit Jellies V. The Role of Pectin. I. The Viscosity and Jellying Properties of Pectin Solutions.
Univ. Del. Agr. Exp. Sta. Bul. 149, (1927).

Fruit Jellies Vi, The Role of Pectin II. The Extraction of Pectin from Pectic Materials.
Univ. Del. Agr. Exp. Sta. Bul. 160 (1929).

Nelson, E. K.
Pectic Acids.
J. Am. Chem. Soc. 48, 2412, (1926).

Acetyl Groups in Pectin.
J. Am. Chem. Soc. 48, 2945 (1926).

Noyes, H. A.
Use of Pectin in Jelly Manufacture.
Ind. En. Chem. News Letter March, 10, 1923, p. 3.

Paine, H. S.
Use of Pectin in Jams and Jellies.
Am. Food J. 17, No. 3, p. 11-3 (1922).

Parloa, M.
Canned Fruits, Preserves, Jellies.
U. S. Dept. Agr. Farmers' Bul. 203, (1904).
(Exp. Sta. Record 16, 392).

Peters, G. A. and Stratford, R. K.
Effect of Pectin, Acid, Sugar on Character of Gels.
Science, N. S., 51, 610 (1921)

Poore, M. D.
U. S. Dept. Agr. Bul. 1323, (1925).

Rabak, F.
Commercial Utilization of Grape Pomace and Stems from the Grape Juice Industry.
U. S. Dept. Agri. Bul. 952, (1921).
(C. A. 15, 3343) Exp. Sta. Rec. 45, 209)

Ripperton, J. C.
Application of the Principles of Jelly Making to Hawaiian Fruits.
Hawaii Agr. Expt. Sta. Bul. 47, (1923).

Rooker, Wm. A.
Book: Fruit Pectin. Avi. Publishing Co. N. Y. City.

_____ Commercial Manufacture of Pectin Syrups and Powdered Pectins.
Fruit Products J. Am. Vin. Ind. 5, Nos. 1-9.
(Sept. 1925 to May 1926).

_____ The Evaluation of Pectin Raw Materials
Fruit Products J. Am. Vinegar Ind. 5, No. 8, p. 22, (Jan. 1926)
See also Cohen, The Keeping Quality of Pomace.

_____ New Uses for Pectin.
Fruit Products J. Am. Vinegar Ind. 7, No. 1, p. 11-3 (Sept. 1927)
(C. A. 21, 3715)

_____ Fruit Pectin in Confections.
Fruit Products J. Am. Vin. Ind. 7, No. 3, p. 9-11 (Nov. 1927)

———— The Commercial Manufacture and Government Standards for Preserves.
Fruit Products J. Am. Vinegar Ind. 7, No. 4, p. 9,(Dec. 1927)

———— Commercial Manufacture of Jams Jellies and Kindred Products. * * *
Fruit Products J. Am. Vinegar Ind. 7, No. 6, p. 18-20 (Feb. 1928)
(C. A. 22, 1634)
Federal laws are interpreted for the manufacturer.

Singh, L.
Relation of Pectin and Acidity in Jelly Making.
Ind. Eng. Chem. 14, 710-1 (1922)
(C. A. 16, 3142).

———— Factors in Manufacturing Fruit Products.
Canning Age, June 1922, p. 17-20.

———— Important Discoveries in Jelly Making.
Canning Age, July 1922, p. 5-8.

———— Practical Experiments in Jelly Making.
Canning Age, Aug. 1922, p. 11-4.

Snow, J. H.
Effect of Sugar and Temperature on Fruit Juices.
J. Home Econ., 1, 261-6, (1909)
(C. A. 4, 1324)

Soule, M. H.
Constants in Jelly Making.
The Canner, 53, No. 9, p. 28

Sucharipa, R.
Experimental Data on Pectin-Sugar-Acid Gels.
J. A.O.A.C. 7, 57-68 (1923)

———— Protopectin and Some Other Constituents of Lemon Peel.
J. Am. Chem. Soc. 46, 145-56 (1924)

Tarr, L. W.
A Study of the Factors Affecting the Jellying of Fruits.
Univ. Del. Agr. Expt. Sta. Ann. Report. Bul. 133, 14-5(1923).

———— Fruit Jellies I. The Role of Acids.
Univ. Del. Agr. Expt. Sta. Bul. 134 (1923)
See also Myers, P. B.

———— and Baker, C. L.
Fruit Jellies. II The Role of Sugar.
Univ. Del. Agr. Exp. Sta. Bul. 136, (1924)

Tarr, L. W.
Fruit Jellies III. Jelly Strength Measurements.
Univ. Del. Agr. Expt. Sta. Bul. 142. (1926)

Wichmann, H. J.
Report on Determination of Pectin in Fruit and Fruit Products.
J. A.O.A.C. 6, 34-40, (1922).

Wilson, C. P.
Manufacture of Pectin.
Ind. Eng. Chem. 17, 1065 (1925)
A Review.

———
Citrus Pectin.
Am. Food J. 21, 279 (1926.
(C. A. 20, 2711).

———
Relation of Chemistry to the Citrus Products Industry.
Ind. Eng. Chem. 20, 1304-7 (1928)

———
Different Forms of Pectin and How to Handle Them in Manufacturing.
Glass Packer. 8, 113-4 (1929)
(C. A. 23, 2509).

PATENTS RELATING TO PECTIN MANUFACTURE.

U. S. 1,045,849 1912	J. L. Jeffries	Pectin Extract
U. S. 1,067,714 July 15, 1913	Page R. Boyles	Food Product consisting of a Jelly Base.
U. S. 1,082,682 Dec. 30, 1913	Robert Douglas	Food Product.
U. S. 1,167,006 Jan. 4, 1916	Endo Monti	Process of Exhausting Unfermented Grapes and Berries.
U. S. 1,182,517 May 9, 1916	H. C. Whitaker	Food Process and Product.
U. S. 1,199,457 Sept. 26, 1916	J. S. Ellithorp	Fruit Jellies.
U. S. 1,235,666 Aug. 7, 1917.	Robert Douglas	Jelly-Making Product and Process of Producing Same.
U. S. 1,304,166 May 20, 1919.	Robert Douglas	Food Product and Its Method of Manufacture.
U. S. 1,361,238 Dec. 7, 1920	R. S. Fleming	Method of Manufacturing Food Products,
U. S. 1,365,000 Jan. 11, 1921	Rex De Ore Mc Dill	Food Product.
U. S. 1,365,001 Jan. 11, 1921	Rex De Ore Mc Dill	Food Product and Process of Producing Same.
U. S. 1,380,572 June 7, 1921	Ralph H. McKee	The Process of Producing Pectin.
U. S. 1,385,525 July 26, 1921	L. W. Doell and L. A. Maes	Process of Extracting Pectin.
U. S. 1,386,224 Aug. 2, 1921	B. T. Barker	Production of Pectous Substances.
U. S.1,393,660 Oct. 11, 1921	F. G. Beylick	Pectous Material and Process of Making Same.
U. S. 1,398,339 Nov. 29, 1921	Endo Monti	Art of Making Jams, Jellies and Marmalades of Fruits.
U. S. 1,406,554 Feb. 14, 1922	Aage Gusmer	Process of Clarifying Fruit Juices.
U. S. 1,410,920 Mar. 28, 1922	F. W. Huber	Pectic Substances and Process of Making the Same.

U. S. 1,439,834	O. Bielmann	Process of Making Juices, Jellies and Jams.
U. S. 1,497,684 June 17, 1924	Jameson, Taylor and Wilson	Pectin Product and Process of Producing Same.
U. S. 1,507,338 Sept. 2, 1924.	S. L. Crawford	Pectin Freed from Protein and Starch.
U. S. 1,513,615 Oct. 28, 1924	Herbert T. Leo	Dry-Powder Jelly Base Containing Pectin.
U. S. 1,519,561 Dec. 16, 1924	Rudolph Sucharipa	Method and Apparatus for Drying a Substance Carried in a Liquid.
U. S. 1,520,000 Dec. 23, 1924.	Endo Monti	Apparatus for Evaporating Solutions.
U. S. 1,528,469 Mar. 3, 1925.	Glenn Davidson	Method of Manufacturing Pectous Substances Extracts.
U. S. 1,611,528 Dec. 21, 1926.	Eloise Jameson	Pectin Product and Process of Producing Same.
U. S. 1,634,879 July 5, 1927	D. R. Manji and F. J. Paton	Manufacture of Pectin Products
U. S. 1,646,157 Oct. 18, 1927.	Herbert T. Leo	Dry-Powdered Jelly Base and Process of Making Same
U. S. 1,654,151 Dec. 27, 1927.	Herbert T. Leo	Process of Extracting Pectin from Fruit.
U. S. 1,655,598 Jan. 3, 1928.	Herbert T. Leo	Process of Making Powdered or Granular Jellifying Compounds.
U. S. 1,659,086 Feb. 14, 1928.	E. R. Darling	Manufacture of High Grade Apple Juice.
U. S. 1,675,035 June 26, 1928	Albert Leo	Pectin Product

PATENT DISCUSSION

Lathrop, C. P.
Pectin Patent Situation.
The Canner 69, No. 25, p. 29 (1929)
Review of recent decisions as to the validity of U. S. 1,082,682; 1,235,666; 1,304,166.

Daughters, M. R.
Patents on the Manufacture and Use of Pectin.
Chapter XV Fruit Pectin by W. A. Rooker, New York (1928)

Anonymous.
Douglas Pectin Corporation Wins Its Suit Against Armour and Company.
Fruit Products J. Am. Vinegar Ind. 8, No. 1, p. 19 (Sept. 1928)

Daughters, M. R.
Pectin and the Patents on Its Manufacture.
Canning Age 7, 11082; 357-9 (1926)

Cohen, J. S.
Pectin Patents Fully Described.
Fruit Products J. Am. Vinegar Ind. 1, No. 9, p. 12-3 (May 1922)

———
Letter on Pectin Patents Brings Reply from Well Known Authority.
Fruit Products J. Am. Vinegar Ind. 1, No. 7, p. 20 (Mar. 1922).

BIBLIOGRAPHY
OF
CHEMISTRY OF PECTIN AND ITS RELATION TO JELLY MAKING

(Additional to that Given in U. S. Dept. of Agr. Bulletin 1323)

V. B. Bonney
Food Control Laboratory, Bureau of Chemistry.

Adams, Lucile Wheeler, and Loflin, Ethel,
Jelly Making with Sugar Savers
J. Home Econ., X, pp. 503-10, (1918). (C.A. 13, p. 620, Expt. Sta. Record, 40, p. 558)

Ahmann, C. F., and Hooker, H. D.
The Estimation of Pectin and a Study of the Constitution of Pectin.
Univ. of Missouri Coll. of Agr., Agr. Expt. Sta. Res. Bul. 77, (June, 1925)

Anonymous
Pectin Situation of Today.
Amer. Vinegar Ind., Nov., 1922, p. 16.

Ball, Nigel G.
On the Action of Pectase
Sci. Proc. Roy. Dublin Soc., 14, p. 349-57, (1915)
(C.A. 10, p. 205; Exp. Sta. Record, 35, p. 25)

Barker, B. T. P.
The Manufacture of Cider Apple Jelly
J. Bath. W. S. Cos. Soc., 12, Ser. 5, p. 151, 175 (1917-18).
(Univ. of Bristol Ann. Rept. Agr. and Hort. Res. Sta. 1917, pp. 55-70; Exp. Sta. Record, 40, p. 414)

_____ and Dutt, C. P.
Chemistry of Pectin, Enzyme Action
Gt. Brit. Dept. Sci. Ind. Res. Food Invest. Bd. Rept., 1919, pp. 21-4.

Belling, J.
Guava
Fla. Agr. Exp.Sta. Rept., 1908, p. CV-CIX (Exp. Sta. Record, 21, p. 380)

Brown, J. C.
Some Observations on Pectin
Amer. Vinegar Ind., 2, No. 10, pp. 14-5, June, 1923.

_____
Some Facts about Pectin
Amer. Food J. July, 1923, p. 348.

Campbell, C. H.
Jelly
J. Ind. Eng. Chem., 12, pp. 558-9, (1920). (C.A. 14, p. 2225; Exp. Sta. Record, 43, p. 616)

Carre, M. J.
Relation of Pectose and Pectin in Apple Tissue.
Biochem. J., 19, pp. 257-265 (1925)

Cohen, Julian S.
General Review of Pectous Substances up to 1900
Amer. Vinegar Ind., Sept., 1922, p. 15.

_____
The Origin of Pectin and Its Manufacture
Amer. Vinegar Ind., 1, No. 5, pp. 13-4 (1922)

_____
Letter on Pectin Patents brings Reply from Well Known Authority
Amer. Vinegar Ind., 1, No. 7, p. 20 (1922)

_____
Pectin Patents Fully Described
Amer. Vinegar Ind., 1, No. 9, pp. 12-3 (1922).

TP 562
Cohen, Julian S.
The Keeping Quality of Pomace. Its sale Based on Pectin Present.
Amer. Vinegar Ind., 2, No. 5, p. 11, (1923).

_____
More Observations on Pectin.
Amer. Vinegar Ind., 2, No. 12, p. 11 (1923)

_____ Pectin Jams and Jellies
Amer. Vinegar Ind., 3, No. 4, p. 13 (1924)

Congdon, Leon A.
Investigation of Commercial Fruit Jellies.
N. D. Agr. Exp. Sta. Food Dept. Bul., 3, No. 8, pp. 112-24
(1914). (C.A. 9, p. 1949)

_____
A Study of the Gelatinizing Agents, Pasty Materials and Thickeners used in Food Products.
Trans. Kans. Acad. Sci., 27, pp. 81-6, (1914) (Exp. Sta. Record, 34, p. 167)

Cruess, W. V.
Jellies and Marmalades from Citrus Fruits.
Calif. Exp. Sta. Cir. 146, (1916). (C.A. 11, p. 1497)

_____
Fruit By-products.
Calif. Sta. Rept., p. 31, (1915). (C.A. 10, p. 1385)

_____
Relation of Jelly Manufacture to Canning
The Canner, 57, No. 3, pp. 27-30 (1923).

14

Daughters, Milo R.
Pectin and the Patents on Its Manufacture.
Canning Age, Feb. 1926, p. 110; Mar. 1926, p. 110.

Dearing, Charles
Home Uses for Muscadine Grapes.
U. S. Dept. of Agri. Farmers' Bul. 859, pp. 9-16 (1917).

Denton, Minna C.
Kitchen Tests for Pectin in Jelly Making.
J. Home Econ., X, pp. 520-1 (1918). (Exp. Sta. Rec., 40, p. 558)

Making and Use of Apple Pectin Sirup in the Home.
Mimeograph Sheet Exp. Kitchen, Off. Home Econ., States Relations Service, U. S. Dept. Agri., 6 pages, June 22, 1921.

Dore, W. H.
Recent Progress in the Chemistry of Pectin and Its Industrial Applications.
J. Ind. Eng. Chem., 16, No. 10, pp. 1042-1044 (1924).

The Pectic Substances.
J. Chem. Education, 3, No. 5, pp. 505-513 (1926).

The Composition of Pectin: A Preliminary Report on the Determination of Galacturonic Acid in Pectin.
J. Amer. Chem. Soc., 48, No. 1, pp. 151-164 (1926).

Dilwarth, William S.
Real Preserves, Jams, Jellies
Imitation Preserves, Jams, Marmalades, Jellies
The Canner, 50, No. 2, p. 50 (1920).

Dutt, C. P.
Quantitative Estimation of Pectin in Fruits.
Gr. Brit. Dept. Sci. Ind. Res. Food Invest. Bd. Report, pp. 23-4 (1920); pp. 26-8 (1921). (Exp. Sta. Rec., 46, p. 207)

Eckart, Dr. H. and von Gyalokay, A.
Weiter Ergebnisse der Pektinforschung,
Die Konservan Industrie, 14, No. 1, p. 2 (1927).

Emmett, A. M. and Carré, M. H.
A Modification of the Calcium Pectate Method for the Estimation of Pectin.
Biochem. Jour. 20, No. 1, pp. 6-12 (1926)

Euler, Hans and Svanberg, Olof
Zur Kenntnis der Pektase Wirkung
Biochem. Zeit., 100, pp. 271-8 (1919). (Exp. Sta. Record, 45, pp. 204-5)

15

Falk, George K. and McGuire, G.
Studies of Enzyme Action. XXI - Banana Oil and Banana Sucrose.
J. Biol. Chem. 54, No. 4, p. 655 (1923).

Farjnell, R. G. W.
The Pectin and Pentosan Content of Cane Juices, Syrups and Molasses and Its Removal.
Intern. Sugar J., 26, pp. 480-6 (1924).

Fellenberg, Th. von
Zur Kenntis des Pektins.
Mitt. Lebensm. Hyg., 5, pp. 225-7 (1914). (C.A. 9, p. 488).

Ueber den Ursprung des Methylalkohols in Trinkbrauntweinen.
Mitt. Lebensm. Hyg., 5, pp. 172-8 (1914). (C.A. 8, p. 3461).

Ueber verschiedene Bindungaarten des Methylalkohols in Pflanzenreich. Bestimsung des Pektin und Lignin Methylalkohols in Gewurzen.
Mitt. Lebensm. Hyg., 8, pp. 1-29 (1917). (C.A. 11, p. 2122).

Ueber den Machweis und die Bestimung des Methylalkohols sein Vorkommen in den verschiedenen Nashrungsmitteln und das Verhalten der Methylalkoholhaltigen Nahrungsmittel im Organisms.
Biochem. Zeit., 85, pp. 45-117 (1918). (C.A. 12, p. 2085.

Goris, A., and Crete, L.
Sur une cause d'erreur dans la determination du pouvoir rotatoire de certaines pectines.
Bull. sci. pharmacol., 17, pp. 71-5 (1910). (C.A. 5, p. 349).

Hafley, A. H.
Pectin Extracting and Cider Pressing by New Machine.
The Canner, 52, No. 1, p. 39 (1921).

Halliday, E. G., and Bailey, G. H.
Effect of $CaCl_2$ on Acid-Sugar-Pectin Gels.
Ind. Eng. Chem. 16, No. 6, pp. 595-597 (1924).

Haynes , Dorothy, and Judd, Hilda M.
The Effect of Methods of Extraction on the Composition of Expressed Apple Juice and the Determination of the Sampling Error of Such Juices.
Biochem. J., 13, p. 272 (1919). (C.A. 14, p. 757).

Changes of Chemical Composition in Stored Apples.
Gt. Brit. Dept. Sci. Ind. Res. Food Invest. Bd. Rept., pp. 22-4 (1921)

Jameson, E.
Requirements of Pectin for the Commercial Jelly Maker.
Ind. Eng. Chem., 17, No. 12, pp. 1291-1292 (1925).

16

King, J.
The Adulteration of Conservers with Special Reference to Pectin and Agar Agar.
The Analyst, 50, No. 593, p. 371 (1925).

Kopaczewski, W.
Coagulation of Pectin.
J. Soc. Chem. Ind., 44, No. 30, p. b-564 (1925).

Leo, H. T.
The Proper Application of Pectin in Jelly-Making.
The Canner, 61, No. 2, p. 41 (1925).

Linden, T. Van der
Mededeelingen Van Het Proefstation Voor de Java Suikerindustrie Gom-en pectinebepaling in filtervail.
Archief voor de Suikerindustrie in Nederlandsch Indie, 24, pp. 539-53 (1916). (C.A. 11, p. 2622; Exp. Sta. Rec., 36, p. 415).

McNair, J. B.
Pectin.
Field Museum of Natural History Publication 238, Botanical Series 6, No. 1, pp. 73-102 (1926).

Mehlitz, Dr. Alfred
Ueber die Pektinstoffe.
Die Konserven Industrie, 13, Nos. 45-51 incl. (1926).

Nanji, D. R., Paton, F. J., and Ling, A. R.
Application of Decarboxylation to the Establishment of the Constitution of Pectins and to their Determinations
J. Soc. Chem. Ind., 44, No. 21, pp. 253t-258t (1925).

_____ and Norman, Arthur Geoffrey
Studies of Pectin.
J. Soc. Chem. Ind., p. 337 I, Sept. 24, 1926.

Norris and Schryver
Pectic Substances of Plants. III. Nature of Pectinogen and Its Relation to Pectic Acid.
Biochem. J., 19, No. 4, p. 676 (1925).

Noyes, H. A.
Use of Pectin in Jelly Manufacture.
J. Ind. Eng. Chem. News Letter, March 10, 1923, p. 3.

Onslow, Muriel Wheldale
Oxidizing Enzymes. Pt. 1. Nature of Peroxide Naturally Associated with Certain Direct Oxidizing Systems in Plants.
Biochem. J. 13, No. 1, pp. 1-9 (1919). (C.A. 13, p. 2886.

(7)

Onslow, Muriel Wheldale
Oxidizing Enzymes. Pt. II. The Nature of the Enzymes Associated with Certain Direct Oxidizing Systems in Plants.
Biochem. J., 14, pp. 535-40 (1920) (C.A. 15, p. 99).

Oxidizing Enzymes. Pt. III. The Oxidizing Enzymes of Some Common Fruits.
Biochem. J. 14, pp. 541-7 (1920). (C.A. 15, p. 99).

Oxidizing Enzymes. Pt. IV. The Distribution of Oxidizing Enzymes among Higher Plants.
Biochem. J., 15, pp. 107-12 (1921). (C.A. 15, p. 2467).

Oxidizing Enzymes. Pt. V. Further Observations on the Oxidizing Enzymes of Fruits.
Biochem. J., 15, pp. 113-7 (1921). (C.A. 15, p. 2468).

Paine, H. S.
Use of Pectin in Jams and Jellies.
Amer. Food J., 17, No. 3, pp. 11-3 (1922).

Pellet, Henri
L' influence des matieres pectiques sur la polarization des betteraves analysees par les methodes du Dr. Zscheye (digestion salée) et de H. H. F. Strohmer et C. Fallada.
7th Intern. Cong. Appl. Chem. London, Sec. 5, pp. 55-60 (1909). C.A. 4, p. 1693).

Peltrisot, M. C. N.
La dosage des matieres utiles dans les confitures gelees et marmalades.
J. pharm. chim., 18, pp. 33-41 (1918). (C.A. 12, p. 2632).
Exp. Sta. Rec., 39, p. 612.)

Peters, C. A. and Stratford, M. K.
Effect of Pectin, Acid, Sugar on Character of Gels.
Science, N. S., 51, p. 610 (1921).

Rebak, F. and Thrader, J. H.
Commercial Utilization of Grape Pomace and Stems from the Grape Juice Industry.
U. S. Dept. Agr. Bul. 962, 22 pages (1921). (C.A. 15, p. 3343; Exp. Sta. Rec., 45, p. 209).

Rooker, W. A.
The Commercial Manufacture of Pectin Syrups and Powdered Pectins.
Fruit Products J. and Am. Vinegar Ind., 5, No. 1 (1925); No. 2 (1925); No. 3 (1925); No. 4 (1925); No. 5 (1926). No. 6 (1926) No. 7 (1926): No. 8 (1926): No. 9 (1926).

Schryver, S. B., and Wood, C. C.
A New Method for the Estimation of Methyl Alcohol.
The Analyst, 45, p. 164 (1920). (C.A. 15, p. 39).

Singh, Lal
Factors in Manufacturing Fruit Products.
Canning Age. pp. 17-20 (June, 1922).

Important Discoveries in Jelly Making.
Canning Age, pp. 5-8 (July, 1922).

Practical Experiments in Jelly Making.
Canning Age. pp. 11-14 (Aug. 1922).

Smolenski, K.
Acetic Acid as a Product of Hydrolysis of Pectin.
J. Soc. Chem. Ind., 44, No. 2, p. b-25 (1925).

Snow, Jenny H.
Effect of Sugar and Temperature on Fruit Juices.
J. Home Econ., 1, pp. 261-6 (1909). (C.A. 4, p. 1324).

Soule, Malcolm H.
Constants in Jelly Manufacture.
The Canner, 53, No. 9, p. 28.

Strohmer, F., and Fallada, O.
Ueber Trockenmarmelade und die Beeinflussung der Zuckerbestimung in Obstkonserven durch in denselben vorkommende Pektinstoffe.
Osterr. Z. Zuckerind. Landw., 39, pp. 49-55 (1910). (C.A. 4, p. 2215).

Sucharipa, R.
Die Pektinstoffe.
Verlag. Dr. Berger und Heinpel, Braunschweig, Paslfach 117.

Tarr, Lester W.
A Study of the Factors Affecting the Jellying of Fruits.
Univ. of Del. Agr. Expt. Sta. Ann Rept. Bul. 133, pp. 14-15 (1922)

Trier, G.
Zur Kenntnis der Pektinstoffe.
Schweiz. Apoth. Ztg., 55, pp. 369-74 (1917). (C.A. 11. pp. 2583, 2923).

Truelle, A.
La fabrication des gelees de pommes a cidre.
Vie Agr. et Rurale, 6, pp. 357-61 (1916). (C.A. 12, p. 595; Exp. Sta. Rec. 37, p. 15).

19

Tutin, Frank
The Behavior of Pectin towards Alkalies and Pectase.
Biochem. J., 15, pp. 494-7 (1921). (C.A. 16. p. 65)

A Note on the Hydrolysis of Pectin.
Biochem. J., 17, No. 1, p. 83 (1923).

Pectin and Its Hypothetical Precursor Protopectin.
Biochem. J., 17, Nos. 4 and 5, pp. 510-514 (1923).

Tschirch, A.
Ueber Pektin und Protopektin.
Schweiz. Wochschr. f. Chem. und Pharm., 45, pp. 610-13 (1907).
(C.A. 2, p. 431).

---- and Rosenberg.
Ueber die Pektinmetamorphose.
Inaugural Dissertation, Bern. (1908). (Ref. in bibliography by McNair, J. Phys. Chem., 29, No. 8, p. 839).

Verdon, M. Emile
Sur les pectines des feuilles de Kalmia latifolia L. et des racines de Verbascum Thapsus L.
J. pharm. chim. Ser. VII, 5, pp. 347-53 (1912).(C.A. 6, p. 1657)

Wendelmuth, G.
Gel Forming Power of Fruit Juices and Pectin Solutions.
Koll. Chem. Beih., 19, pp. 115-137 (1924). C.A., p. 2772 (Sept. 10, 1924).

Wilson, C. P.
The Manufacture of Pectin.
J. Ind. Eng. Chem., 17, No. 10, pp. 1065-1067 (1925).

Woodruff, S.
Pectin Relationships in Jelly Making.
J. Home Econ., 16, p. 87 (1924).

For references prior to 1905, consult the following publications which contain comprehensive bibliographies on this subject:

Bigelow, W. D., Gore, H. C., Howard, B. J.
Studies on Apples. II. Insoluble Carbohydrates or Marc.
U. S. Dept. Agr. Bur. Chem. Bul. 94, pp. 67-87 (1904).

Hebert, M. A.
Ann. sci. agron., 26, pp. 34-50 (1900).

Lipmann, von
Chemie der Zuckerarten, pp. 924-36 (1895).

Tollens
Handbuch der Kohlenhydrate, pp. 242-7 (1895) ed.)

PATENTS

Bacon, R.
Use of Chloroform to Preserve Fruit Juices.
U. S. 1, 553,496

Barker, B. T. P.
Production of Pectous Substances.
U. S. 1, 386, 224 (August 2, 1921).

———
Pectous Extracts.
Brit. 125,330 (November 14, 1918).

Boylik, F. G., and Schwaitzlose, N. W.
Pectous Material and Process of Making the Same.
U. S. 1, 393,560 (September 25, 1920; October 11, 1921).

———
Pectous Material.
Brit. 184,061 (September 5, 1921).

Bielmann, O.
Process of Making Juices, Jellies, and Jams from Vegetable Substances such as Fruits and Vegetables.
U. S. 1, 429,834 (July 19, 1920).

Boyles, Page R.
Food Product Consisting of a Jelly Base.
U. S. 1,067,714 (October 16, 1912).

Crawford, S. L.
Method of Freeing Pectin from Starch and Protein by Addition of Diastase and Pectin.
U. S. 1,507,338

Davidson, Glenn
Pectous Extracts from Fruits and Vegetables.
U. S. 1,528,469

Diedler, E.
Material for Making Jellies.
Brit. 105,262 (June 9, 1916).

71